

The Secret of Getting An A on Pre Calculus Final (Pre Cal Honor Final Review)

Lesson 251 | Precalculus | Functions, composition and piecewise rules • Trigonometric equations • Conic sections

https://www.youtube.com/watch?v=N8j0Nb2tO_k

Related review: exact coverage needs teacher confirmation.

Name: _____ Date: _____ Show your reasoning.

01

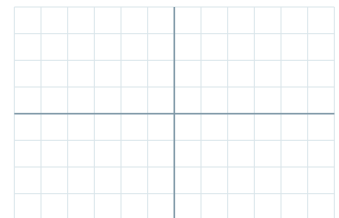
Let $f(x) = 2x + 10$ for $x < -2$, and $f(x) = x^2 + 7$ for $x \geq -2$. Find $f(-3)$, $f(-2)$, and $f(-1)$.

02

Solve $3\sin(6x) - \frac{3}{2} = 0$ for $0 \leq x < 2\pi$. Give an exact formula listing all roots.

03

For $(x - (-7))^2/196 + (y - 2)^2/81 = 1$, find the center, vertices, co-vertices, and foci; sketch.



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04

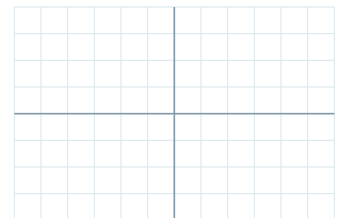
Let $f(x) = 8x + 12$ for $x < 8$, and $f(x) = x^2 + 7$ for $x \geq 8$. Find $f(7)$, $f(8)$, and $f(9)$.

05

Solve $14\sin(4x) - 7 = 0$ for $0 \leq x < 2\pi$. Give an exact formula listing all roots.

06

For $(x - (-3))^2/121 + (y - 10)^2/49 = 1$, find the center, vertices, co-vertices, and foci; sketch.



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01

Let $f(x) = 2x + 10$ for $x < -2$, and $f(x) = x^2 + 7$ for $x \geq -2$. Find $f(-3)$, $f(-2)$, and $f(-1)$.

Choose the rule from the input interval: $f(-3) = 4$; $f(-2) = 11$; $f(-1) = 8$. Equality uses the second rule.

02

Solve $3\sin(6x) - 3/2 = 0$ for $0 \leq x < 2\pi$. Give an exact formula listing all roots.

$\sin(6x) = 1/2$. Thus $x = (\pi/6 + 2k\pi)/6$ or $x = (5\pi/6 + 2k\pi)/6$, $k = 0, 1, \dots, 5$. There are 12 roots in the interval.

03

For $(x - (-7))^2/196 + (y - 2)^2/81 = 1$, find the center, vertices, co-vertices, and foci; sketch.

Center $(-7, 2)$; horizontal semimajor axis 14, semiminor axis 9. Vertices $(-21, 2), (7, 2)$; co-vertices $(-7, -7), (-7, 11)$; foci $(-7 \pm \sqrt{115}, 2)$.

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04

Let $f(x) = 8x + 12$ for $x < 8$, and $f(x) = x^2 + 7$ for $x \geq 8$. Find $f(7)$, $f(8)$, and $f(9)$.

Choose the rule from the input interval: $f(7) = 68$; $f(8) = 71$; $f(9) = 88$. Equality uses the second rule.

05

Solve $14\sin(4x) - 7 = 0$ for $0 \leq x < 2\pi$. Give an exact formula listing all roots.

$\sin(4x) = 1/2$. Thus $x = (\pi/6 + 2k\pi)/4$ or $x = (5\pi/6 + 2k\pi)/4$, $k=0,1,\dots,3$. There are 8 roots in the interval.

06

For $(x - (-3))^2/121 + (y - 10)^2/49 = 1$, find the center, vertices, co-vertices, and foci; sketch.

Center $(-3, 10)$; horizontal semimajor axis 11, semiminor axis 7. Vertices $(-14, 10), (8, 10)$; co-vertices $(-3, 3), (-3, 17)$; foci $(-3 \pm \sqrt{72}, 10)$.